

ABSTRACT OF THE DISCLOSURE

Systems and methods are described for improved yield and line width performance for liquid polymers and other materials. A method for minimizing precipitation of developing reactant by lowering a sudden

5 change in pH includes: developing at least a portion of a polymer layer on a substrate with an initial charge of a developer fluid; then rinsing the polymer with an additional charge of the developer fluid so as to controllably minimize a subsequent sudden change in pH; and then rinsing the polymer with a charge of another fluid. An apparatus for minimizing fluid

10 impingement force on a polymer layer to be developed on a substrate includes: a nozzle including: a developer manifold adapted to supply a developer fluid; a plurality of developer fluid conduits coupled to the developer manifold; a rinse manifold adapted to supply a rinse fluid; and a plurality of rinse fluid conduits coupled to the developer manifold. The

15 developer manifold and the rinse manifold can be staggered so as to reduce an external width of the nozzle compared to a nominal external width of the nozzle achievable without either intersecting the fluid manifold and the another manifold or staggering the fluid manifold and the another manifold. The systems and methods provide advantages including improve yield via

20 reduced process-induced defect and partial counts, and improved critical dimension (CD) control capability.